

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: DROHMANN et al. GROUP: 1724
SERIAL NO: 10/398,179 EXAMINER: R. J. Popovics
FILED: 04/02/2003
FOR: „Use of Polymers as Filter Aids and/or Stabilizers”

DECLARATION UNDER 37 C.F.R. 1.132

COMMISSIONER FOR PATENTS

I, Dr. rer. nat. Marianna Pierobon, a citizen of Italy and residing at Sauerbruch st 26, 67063 Ludwigshafen, Federal Republic of Germany depose and state that:

1. I am a graduate of the University of Bonn, Federal Republic of Germany, and received my Ph.D. degree in chemistry in the year 2002.
2. I have been employed by BASF Aktiengesellschaft, D-67056 Ludwigshafen, Germany, for four years as a chemist in the field of polymer research.
3. The following experiments were carried out by me or under my direct supervision and control.

The sedimentation behavior of the following polymer powders in water was compared:

- A) polystyrene (standard polystyrene PS 158K ground to a mean particle size of $D(v, 0.5) = 196 \mu\text{m}$)
- B) polyvinylpolypyrrolidone (Divergan® F, BASF Aktiengesellschaft, mean particle size of $D(v, 0.5) = 27 \mu\text{m}$)
- C) A mixture of polystyrene A and polyvinylpolypyrrolidone B in a ca. 2:1 weight ratio
- D) A compound (mean particle size of $D(v, 0.5) = 45 \mu\text{m}$) of polystyrene and polyvinylpolypyrrolidone in a ca. 2:1 weight ratio

10 g of the respective polymer powder were filled into 500 ml of distilled water, at room temperature. The mixture was shaken for 1 minute and poured into beaker glasses.

All mixtures of A to D were poured into the beaker glasses at the same time. After 5 minutes pictures have been taken that show the different sedimentation behavior of the four polymer powder-water-mixtures.

A

B

C

D

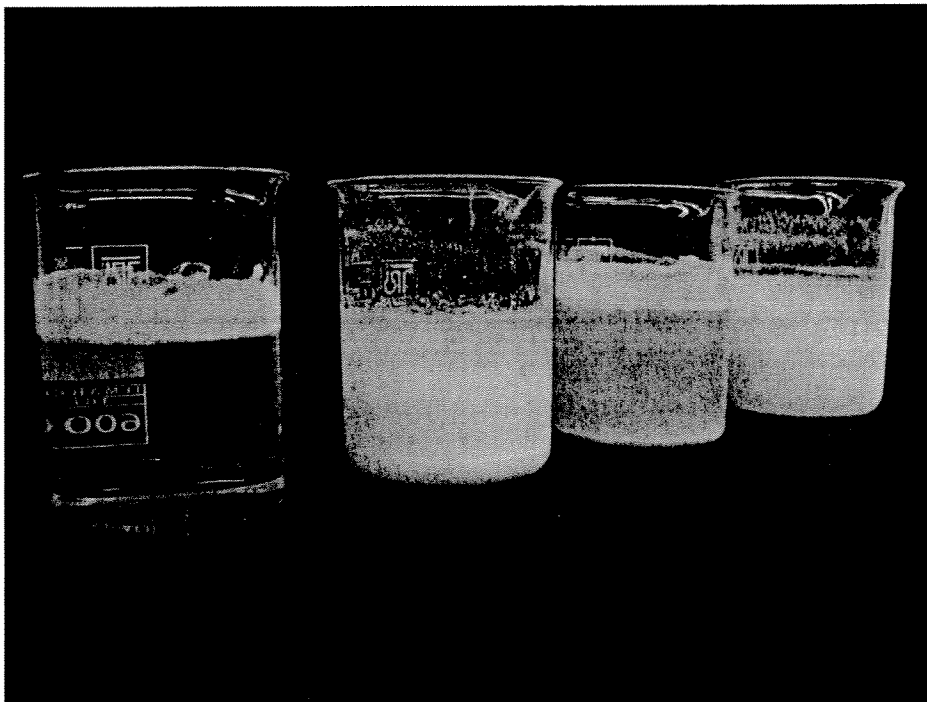


Photo PA120032

A

B

C

D

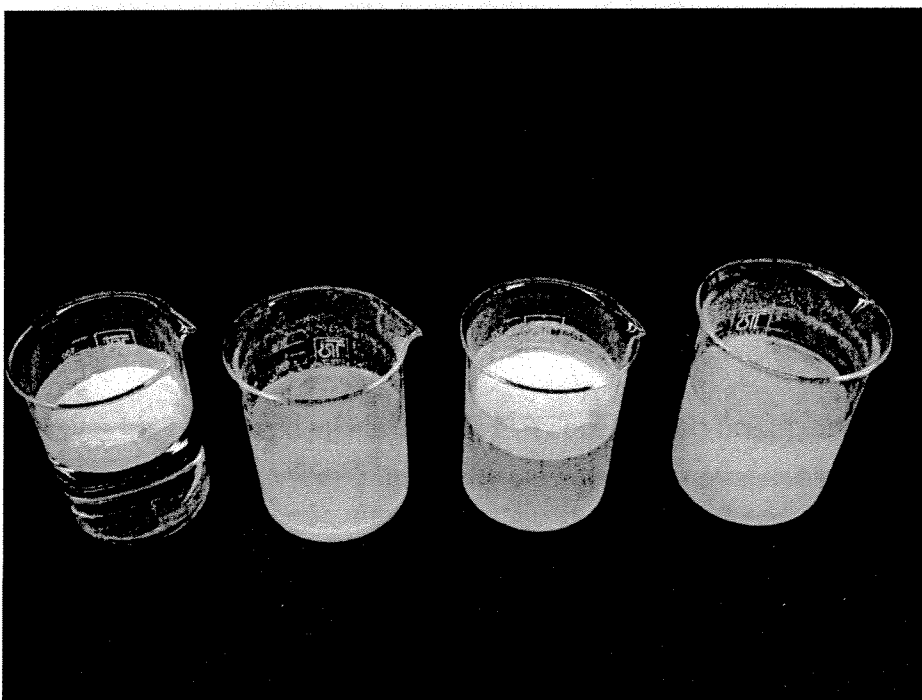


Photo PA120040

The sedimentation behavior is described (see also pictures):

- A) Polystyrene A does not sediment at all, but is afloat.
- B) Polyvinylpyrrolidone B has sedimented to a large extent, other particles are distributed all over the aqueous phase.
- C) Mixture C expressed a mixed behavior. Polystyrene is afloat, whereas polyvinylpyrrolidone mainly has sedimented.
- D) In contrast, the compound D exhibits no particles that are afloat. Few particles had already sedimented whereas most particles are still distributed all over the aqueous phase.

This experiment can be found in BASF's research records under the Laboratory Journal No. 8113/06-69

This experiment shows difference in the behaviour of the four materials in water. Only with material that gives sedimentation and chemically and physically homogeneous distribution in the water phase it is possible to obtain a pre-coat filter that is chemically and physically homogeneous.

Compounds A and C do not give any chemically and physically homogeneous distribution in the water phase.

Compound B gives faster sedimentation compared to compound D. Nevertheless compound B, used alone, is not suitable for filtration of beer. The dosage required for successful elimination of yeast cells would adsorb most of the phenolic compounds (polyphenols) that are necessary to give beer its typical flavour.

4. I further declare that all statements made herein of my own knowledge are true and that statements made on information or belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

5. Further deponent saith not.

D-67056 Ludwigshafen, Germany

Place

Marius Jahn

Signature

18. 10. 2006

Date